

AMENDMENTS TO THE CLAIMS:

The listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF THE CLAIMS

1. (Previously Presented) A method of providing an in-mold coated molded article, comprising:

(a) injecting a molten resin into a mold cavity until the molding cavity is substantially filled;

(b) allowing the injected molten resin to cool in the molding cavity to form a molded article, wherein said coating composition is injected into the molding cavity based on the elapsed time from the beginning of the molding process or the pressure or temperature measured by a sensor;

(c) injecting a coating composition into the molding cavity and onto the molded article to coat the molded article when at least a surface to be coated of the molded article is determined to have reached a modulus sufficient to support said coating composition; and

(d) recording data on a control apparatus about said in-mold coated article by a data collection means, the recorded data including at least one of (i) the elapsed time from said step of injecting the molten resin into the molding cavity until said coating composition is injected into the molding cavity, (ii) the pressure of the molding cavity when said coating composition is initially injected into the molding cavity, and (iii) the temperature in the molding cavity when said coating composition is initially injected into the molding cavity.

2. (Previously Presented) The method of claim 1 further comprising injecting said coating composition into the molding cavity and onto the molded article at the direction of a control apparatus and at a predetermined elapsed time from the step of injecting the molten resin into the molding cavity that corresponds with the surface of the molded article reaching a modulus sufficient to support said coating composition.

3. (Previously Presented) The method of claim 1 wherein said molding cavity has a volume that remains substantially constant during steps (a) through (c) and is defined by mold members that generally remain a substantially fixed distance relative to one another during steps (a) through (c).

4. (Previously Presented) The method of claim 2 further comprising:
providing a sensor between mold members that define the mold cavity;
closing the mold members to form the mold cavity of a substantially fixed volume prior to the step of injecting the molten resin into the molding cavity;
actuating the sensor when the mold members are closed;
initiating a timer when the sensor is actuated to measure elapsed time from the step of injecting the molten resin into the mold cavity; and
comparing the predetermined elapsed time against the measured elapsed time to determine when to inject said coating composition.

5. (Previously Presented) The method of claim 1 further comprising injecting said coating composition into the molding cavity and onto the molded article before the article has cooled to the extent that curing of said coating composition is inhibited.

6. (Previously Presented) The method of claim 2 further comprising:
using closure of mold members that define the molding cavity to indicate that the step of injecting the molten resin into the molding cavity has begun; and
injecting said coating composition at said predetermined time, said predetermined time being measured from closure of said mold members.

7. (Previously Presented) The method of claim 1 further comprising:
filling a metering cylinder with a desired amount of said coating composition at a second elapsed predetermined time from the step of injecting the molten resin into the molding cavity before the step of injecting said coating composition into the molding cavity; and
evacuating the desired amount of said coating composition from the metering cylinder to inject said coating composition into the mold cavity and onto the molded article at a

predetermined elapsed time from the step of injecting the molten resin into the molding cavity that corresponds with the surface of the molded article reaching a modulus sufficient to support said coating composition.

8. (Previously Presented) The method of claim 1 further comprising measuring pressure in the molding cavity and injecting said coating composition into the mold cavity and onto the molded article when a predetermined pressure is measured in the molding cavity that corresponds with the surface of the molded article reaching a modulus sufficient to support said coating composition.

9. (Previously Presented) The method of claim 1 further comprising measuring temperature in the molding cavity and injecting said coating composition into the molding cavity and onto the molded article when a predetermined temperature is measured in the molding cavity that corresponds with the surface of the molded article reaching a modulus sufficient to support said coating composition.

10. (Withdrawn) An apparatus for injection molding and in-mold coating an article, said apparatus comprising:

at least two mold members defining a mold cavity;
means for injecting a molten resin into said mold cavity to form a molded article therein;
means for injecting a coating composition into the mold cavity and onto the molded article; and

means for determining when at least a surface to be coated of the molded article has reached a modulus sufficient to support said coating composition.

11. (Cancelled).

12. (Original) The method of claim 11 further comprising the step of transferring said recorded data to a remote location.

13. (Previously Presented) The method of claim 1 further comprising the steps of:

using a package code reader for obtaining information on the in-mold coating composition from a container holding the in-mold coating composition; and
recording said obtained information on the in-mold coating composition.

14. (Previously Presented) The method of claim 1 further comprising the steps of:

providing a user interface wherein a user is presented with a plurality of part icons corresponding to a plurality of in-mold coated articles;

selecting a specific part icon from said plurality of part icons that corresponds to a specific one of said plurality of in-mold coated articles; and

resetting at least one in-mold coating parameter based on said selected part icons.

15. (Withdrawn) The apparatus of claim 10 wherein said means for injecting said molten resin is a first injector and said means for injecting said coating composition is a second injector.

16. (Withdrawn) The apparatus of claim 10 wherein said means for determining when at least a surface to be coated has reached said modulus sufficient to support said coating composition is a control apparatus used with a sensor that indicates said modulus sufficient to support said coating composition has been reached.

17. (Withdrawn) The apparatus of claim 16 wherein said control apparatus includes a sensor disposed between said mold members that actuates a timer of the control apparatus upon closure of the mold members that indicates said means for injecting a molten resin has begun injecting said molten resin, said control apparatus directing said means for injecting a coating composition into the mold cavity to inject said coating composition after a predetermined elapsed time.

18. (Previously Presented) The method of claim 1 wherein said step of injecting a coating composition includes the substeps of:

sensing that said step of injecting said molten resin into said mold cavity has begun;

initiating a timer to record elapsed time when said step of injecting said molten resin has begun; and

injecting said coating composition when a predetermined elapsed time has been reached on said timer.

19. (Cancelled).

20. (Previously Presented) The method of claim 1 further including:

using said recorded data for quality control purposes.

21. (Previously Presented) The method of claim 6 wherein said step of using said recorded data includes:

examining said in-mold coated article upon ejection from said mold cavity 16;

comparing said in-mold coated article against said recorded data for enhancing quality control of said in-mold coated article.

22. (Previously Presented) The method of claim 7 further including:

adjusting when said in-mold coating is injected into said mold cavity based on the results of said step of comparing said in-mold coated article against said recorded data to improve coating characteristics of future coated parts

23. (Previously Presented) The method of claim 1 further including:

adjusting parameters of said in-mold coating based on said recorded data to improve coating characteristics of future coated parts.